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LXIV.—*Descriptions of some new Scorpions from Ecuador.*
By R. I. POCCOCK.

Family Buthidæ.

Genus TITYUS, C. Koch.

Tityus pugilator, sp. n. (Fig. 1, p. 419.)

♂.—*Colour* of trunk black, of tail greenish black, legs and chelæ yellowish brown.

Carapace and tergites normally granular; sterna very closely and very distinctly granular throughout, except for the usual smooth area on the posterior portion of the third, lateral keels on the last abbreviated.

Tail a little more than five times as long as the carapace, which about equals its fourth segment in length; posteriorly incarsate, the segments increasing in width to the middle of the fifth segment, the fourth very deeply excavated above, its width almost equal to the length of the second segment; the keels normal in number and granulation, the superior keels not ending posteriorly with noticeably enlarged denticles, the intercarinal spaces weakly granular, median lateral crest on second segment represented by a series of four granules, fifth segment about one third longer than wide, width of the fourth about three quarters its length; *vesicle* very weakly granular,

its width about half the length of the carapace, greater than that of brachium, and nearly equal to length of first caudal segment; tooth not close to base of aculeus, as in *forcipula*.

Chelæ with normal crests and granules; hand smooth, normally crested, wide, its inner surface very strongly produced, its width equal to about half the length of the movable digit, less than that part of the immovable which is distal to the tooth; digits not widely separated basally, but the movable strongly lobate, the immovable correspondingly sinuate; 13 rows of teeth on the movable.

Legs granular.

Pectinal teeth 15-16; an angular expansion at the base of the teeth.

Measurements in millimetres.—Total length 51, of carapace 5.5, of tail 30; width of first segment 3, of fifth 4, of vesicle 2.5, of hand 3.3, of brachium 2; length of hand-back 4, of movable digit 6.5.

Loc. Cachavi, N.W. Ecuador, 500 feet (*Rosenberg coll.*).

In thickness of tail and width of hand this species approaches both *T. forcipula*, Gerv., and *T. pachyurus*, Poc., from Colombia, but differs from both in having the chelæ and legs of a much paler colour than the trunk and tail and the digits basally adjacent. From *pachyurus* it further differs in having the abdominal sternal plates coarsely and closely granular, the tergites more closely granular, and the vesicle wider; and from *forcipula* in its less coarsely granular tail, with the superior crests weak and not denticulate, the vesicular tooth further from the base of the aculeus, &c.

Tityus timendus, sp. n.

♂.—*Colour* a uniform black, pectines flavous.

Carapace about as long as fourth caudal segment, like the terga normally crested and granular.

Tail about six times the length of carapace, parallel-sided, first segment as wide as fourth and a little wider than fifth; all the keels strong and coarsely granular, but the terminal granules of the upper crests not enlarged; median lateral crests complete on second segment and represented by about 6 granules lying in the middle of the segment; fourth segment considerably less than twice as long as wide ($4\frac{1}{2} : 7\frac{1}{2}$), width of fifth about half its length and considerably less than length of second; vesicle coarsely granular, its width a little greater than that of brachium, very nearly equal to that of hand; tooth at normal distance from aculeus.

Chelæ normally granular and crested; hand nearly smooth,

crests smooth, of medium strength; width a little greater than that of brachium, equal to area lying between ocular tubercle and posterior border of carapace; digits in contact weakly lobate and sinuate; movable digit less than three times length of width of hand and rather less than twice as great as length of hand-back; 13 rows of teeth.

Legs normally granular and crested.

Sterna granular, fifth much more closely than the fourth, fourth than third, &c., the fifth with coarsely granular keels; second, third, and fourth smooth, shining posteriorly, the smooth patch largest on the third.

Pectinal teeth 19-21; no angular expansion of shaft at base of pecten.

Measurements in millimetres.—Total length 70, of carapace 7.3, of tail 43; width of first segment 4.5, of fifth 4.5; length of latter 8.5; width of vesicle 3.2, of brachium 3, of hand 3.5; length of hand-back 5, of movable digit 9.

Loc. Cachavi, Ecuador (*Rosenberg coll.*).

Judged by the table of species of *Tityus* of the so-called *americanus*-type that I published last year (*Ann. & Mag. Nat. Hist.* (6) xix. pp. 516-517), this new form will fall under heading *b*⁴ of the section devoted to the males alongside of *metuendus*, Poc., which it approaches in dimensions of tail-segments. But the secondary sexual characters are much less strongly pronounced, the tail being less incrassate, the chelæ shorter, the hand narrower, and the digits adjacent. Moreover, in the tail the intercarinal spaces are much smoother, the keels stronger and marked with fewer larger granules, the median lateral keel being complete, though anteriorly weak upon the second segment, while in *metuendus* it is merely represented by a few posterior granules.

Tityus Rosenbergi, sp. n. (Fig. 2, p. 419.)

♂.—*Colour* a uniform black, pectines and tips of digits flavous.

Upper and lower sides of *trunk* carinate and granular, almost as in *T. Cambridgei*.

Tail with its keels and intercarinal spaces much less coarsely granular than in *T. Cambridgei*, of medium length, slender, a little narrowed posteriorly, width of fourth segment a little less than half its length (3:7); fifth segment a little longer than carapace; vesicle a little narrower than brachium and slightly wider than hand; tooth not close to aculeus.

Chelæ long and slender; hand narrower than brachium, strongly keeled, the keels finely granular; digits very long,

the movable more than twice the length of the hand-back, very weakly lobate, furnished with 15 rows of teeth.

Sterna weakly granular, the middle and posterior portions of sterna 1-4 smooth.

Pectinal teeth 21.

Measurements in millimetres.—Total length 69, of carapace 7, of tail 40.5; width of first segment 3.3, of fifth 3.2, length of latter 7.5; width of vesicle 2.5, of brachium 2.6, of hand 2.3; length of hand-back 4, of movable digit 10.2.

Loc. Cachavi, Ecuador (*Rosenberg*).

Falling under heading *b*³ of my synopsis of species based upon females (*op. cit.* p. 518), alongside of *T. Cambridgei*, but differing from the latter in having the intercarinal spaces of the tail and its keels much less strongly granular, the hand narrower and shorter as compared with the movable digit, with the external finger-keel of the hand complete and not mesially broken.

Tityus spinatus, sp. n.

Belonging to the *americanus* section and nearly allied to *T. forcipula*, Gervais, from Ibaque in Colombia.

Colour uniform black or brownish black.

Trunk coarsely granular above; sterna and coxæ closely granular throughout below, with the exception of a small smooth triangular area in the middle of the third sternite.

Tail incrassate to the middle of the fourth and fifth segments, the intercarinal spaces thickly and coarsely granular, the superior more finely so; all the keels coarsely granular, the superior denticulate and ending on the second to fourth segments in an enlarged tooth; granules on upper edge of fifth segment forming a denticulate crest; vesicle granular below, tooth close to base of aculeus; vesicle distinctly wider than brachium, a little wider than hand; fifth caudal segment about as long as carapace, its width about two thirds its length; width of fourth about three quarters its own length and almost equal to length of second segment.

Chelæ closely granular, normally costate; hand very slightly wider than brachium; hand-keels not strong, the external finger-keel weak, but not divided; movable digit a little more than twice as long as hand-back, weakly lobate basally, with 15 rows of teeth.

Pectinal teeth 15.

Measurements in millimetres.—Total length 58; length of carapace 6.5, of tail 35; width of its first segment 4, of its

fifth 4·8, length of latter 7; width of vesicle 3·2, of brachium 2·7, of hand 3; length of hand-back 4, of movable digit 8·8.

Loc. Cuença, in Ecuador (95. 6. 23. 1).

Differs from the female of *forcipula* in having the tail wider, its upper crests more strongly denticulated, those on the fifth segment in *forcipula* not being denticulate. The differences in the proportions of the tail-segments may be judged by a comparison between the measurements in millimetres given of *T. spinatus* and those of the female of the type of *forcipula*.

♀ of *forcipula*.—Total length of tail 39; width of first segment 3·8, of fourth 4·2, of fifth 4·2; length of fourth 6·2, of fifth 7; width of vesicle 3·4, of brachium 2·5, of hand 2·5; length of carapace 6·5.

These data show that the vesicle is larger as compared with the width of the tail in *forcipula* than in *spinatus*.

Tityus ecuadorensis, Kraepelin.

Tityus ecuadorensis, Kraepelin, JB. Hamb. Wissen. Anstalten, xiii. 1896, p. 127, figs. 6, 7.

Subspecies *zarumæ*, nov.

Specimens of a species of *Tityus* received from Zaruma in Ecuador may be recognized from the typical form of *ecuadorensis* as follows:—

- a. Humerus, brachium, and trochanter of chelæ a uniform ochre-yellow, or at most very slightly variegated with black; sterna 3 to 5, sometimes also 2, clouded with black; posterior and lateral portions of carapace much more heavily infuscate; keels and granulation of fifth caudal segment and vesicle stronger *ecuadorensis*, Kraep.
(Loja, in Ecuador.)
- b. Humerus, brachium, and trochanter of chelæ very largely infuscate above; only the last sternite mottled (the fourth sometimes slightly so at the sides); posterior and lateral portions of carapace mostly yellow, lined with black; keels and granulation of fifth caudal segment and vesicle much weaker *ecuadorensis zarumæ*, nov.
(Zaruma, in Ecuador.)

Male and female examples of this form were obtained by Mr. T. Gunter. The male has the tail long and slender and the hands dilated. Co-types of the principal form have been sent to the British Museum by Prof. Kraepelin, of Hamburg.

The species of the genus *Tityus* here recorded from Ecuador may be recognized by the following table:—

- a.* Base of pecten bearing a smooth rounded prominence at the base of the series of teeth (♀).
- a*¹. Conspicuously variegated black and yellow.
- a*². Humerus and brachium of chela not strongly mottled with black, almost entirely pale..... *ecuadorensis*, Kraep.
(From Loja.)
- b*². Humerus and brachium heavily infuscate *zarumæ*, nov. (Sub-specific form from Zaruma.)
- b*¹. Mostly a uniform blackish colour; not variegated.
- a*³. Tail slender, its intercarinal spaces very weakly granular, its crests also weak; sterna weakly granular; hand narrow, but strongly keeled..... *Rosenbergi*, sp. n.
(Cachavi.)
- b*³. Tail thick, fourth and fifth segments wider than first; the intercarinal spaces coarsely and thickly granular; the upper keels of segments 2 to 5 denticulate; hand broader, weakly keeled *spinatus*, sp. n. (Cuença.)
- b.* Base of pecten without smooth rounded lobe, at most with an angular projection of the shaft (♂).
- a*⁴. Strongly variegated black and yellow .. *ecuadorensis*, Kraep.
(The forms from Loja and Zaruma distinguished as under *a*² and *b*².)
- b*⁴. Not strongly variegated.
- a*⁵. Uniformly black; sterna weakly granular; granules of caudal keels few and large, median lateral keel complete on second segment; hand narrower, its width much less than half the length of movable digit *timendus*, sp. n.
(Cachavi.)
- b*⁵. Legs and chelæ paler than trunk and tail; sterna thickly and rather coarsely granular; granules of caudal keels weak and numerous; scarcely a trace of median lateral keel on second segment; hand very broad, its width almost half the movable digit *pugillator*, sp. n.
(Cachavi.)

Family Vejovidæ, Thorell.

Subfamily CHACTINI, Poc.

Genus CHACTAS, Gervais.

Chactas Rosenbergi, sp. n.

Colour black or brownish black, legs yellowish brown.

Carapace about as long as caudal segments $1+2+\frac{1}{2}$ of 3, granular throughout except on the ocular tubercle and the

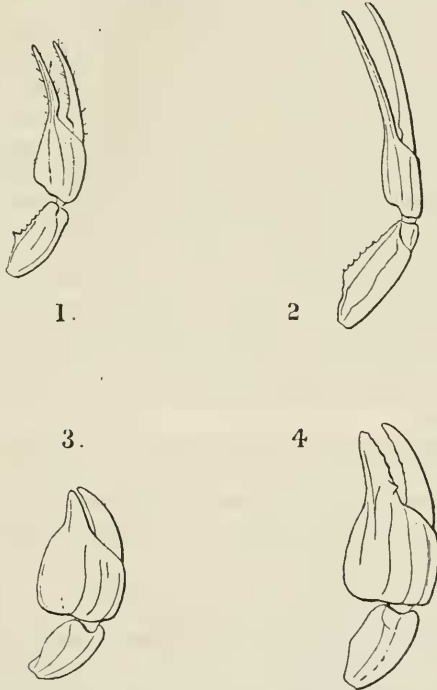


Fig. 1.—Hand and brachium of *Tityus pugillator*, $\times 2$.

Fig. 2.—Ditto of *Tityus Rosenbergi*, $\times 2$.

Fig. 3.—Ditto of *Teuthraustes latimanus*, $\times 2$.

Fig. 4.—Ditto of *Teuthraustes nitescens*, $\times 2$.

two posterior prominences; anterior border deeply excised with rounded frontal prominences, which project far in front of the anterior lateral eye.

Tergites finely granular.

Sternites smooth.

Tail moderately robust; the superior and supero-lateral crests and area between them granular; upper surface of segments smooth in middle, granular at sides; segments 1 to 3 finely granular or coriaceous laterally, smooth and keelless below, the third slightly coriaceous below; fourth distinctly granular below and laterally, with the inferior lateral crest traceable by a series of larger granules, upperside of fourth finely granular mesially; fifth granular above, laterally, and below, the three inferior crests more coarsely granular, with coarser granules between; vesicle large, wider than second segment, granular laterally and below.

Chelæ: humerus finely granular below, coarsely above, the crests strong and granular; two infero-anterior crests; brachium with a row of five posterior pores below, finely granular in front, with a small inferior tubercle, rather coarsely granular above and behind; hand large, its width nearly equal to length of hand-back, finely granularly reticulate above, more coarsely granular externally and internally and at the base of the digits; the network of granules extends on to the inner surface, and is intermixed with larger granules; keel of hand-back strong, granular, area below it smooth, marked in front with an oblique series of 3 pores, with 2 also close to the articulation of the movable digit; immovable digit with strong basal tooth fitting into an excavation of the movable digit, which is only a little longer than the hand-back.

Legs: femora of third and fourth finely granular.

Pectinal teeth 8-10.

Measurements in millimetres.—Total length 65; length of carapace 8.5, of tail 34; width of hand 6.8; length of hand-back 7.5, of movable digit 8.

Loc. Chimbo, 1000 feet, near Guayaquil (*Rosenberg*).

Perhaps most nearly allied to *C. Whymperei*, Poc., from Milligalli, Ecuador (Ann. & Mag. Nat. Hist. (6) xii. p. 90, pl. v. figs. 7-7 b), which it resembles in having the anterior border of the carapace deeply excised in the middle with prominent lateral lobes, which project in advance of the anterior lateral eye, also in the granulation and crest-development of the tail, and in the presence of a large tooth on the immovable digit fitting into an excavation in the movable digit. But *Rosenbergi* has much less coarsely granular carapace and palpi, the hands of which are not nearly so noticeably costate; moreover, the vesicle is granular, not punctured as in *Whymperei*, and, lastly, the legs are yellowish brown.

Genus TEUTHRAUSTES, Sim.

Teuthraustes latimanus, sp. n. (Fig. 3.)

Colour a uniform black above, tarsi ochraceous, vesicle ferruginous-piceous.

Carapace, tergites, and tail uniformly and rather coarsely granular; tubercle continued in front into a long bifid ridge. Upper surface of *tail*-segments finely granular mesially, the second and third smooth in the middle; the median inferior keels weaker than the laterals on segments 1 to 4, scarcely recognizable amongst the granules on the first; superior, supero-lateral, and infero-lateral crests strong and granular; first caudal segment nearly twice as wide as long, its width about equal to the length of the fourth. *Vesicle* broad, furnished laterally and below with seven coarsely granular tracts. Anterior *sterna* smooth, punctured, posterior rather coarsely granular in the middle and laterally.

Chelæ coarsely granular, the granules on the hand forming a network of fused ridges; inner surface of the hand coarsely granular; upper surface externally strongly ribbed; crest of hand-back posteriorly dentate; hand very wide and thick, its width almost equal to the length of the fifth caudal segment and excelling the movable digit; digits short, immovable triangular, only slightly longer than broad, with basal tooth.

Legs 1 and 2 smooth, 3 with granular femur, 4 with femur and patella granular.

Pectinal teeth 7.

Measurements in millimetres.—Total length 48; length of carapace 6.5, of tail 26.5; width of first segment 4, of vesicle 3, of hand 5.5; length of movable digit 4.8.

Loc. Corazon, in Ecuador, 12,000 feet (*E. Whymper*).

Teuthraustes monticola, sp. n.

♀.—*Colour* as in *latimanus*, from which it differs principally in the narrower hand and longer fingers. Hand ornamented above in the middle with low punctured ridges, which towards the inner margin and externally become granular; its width less than length of movable digit; the immovable about twice as long as broad; carapace less coarsely granular, the anterior prolongation of the tubercle shorter and less noticeably divided.

Measurements in millimetres.—Total length 50; length of carapace 7, of tail 26.5; width of first segment 4.2, of vesicle 3.3, of hand 6; length of movable digit 6.5.

Loc. Machachi, in Ecuador, 9000–10,000 feet (*E. Whymper*).

Teuthraustes nitescens, sp. n. (Fig. 4.)

Colour as in the above.

Closely allied to *T. monticola*, from which it scarcely differs in any characters other than those enumerated in the table.

Total length 63 millim.; length of carapace 8, of tail 32; width of first segment 4.3, of vesicle 3.5; width of hand 6; length of movable digit 7.5.

Loc. Cachavi, in Ecuador (*Rosenberg coll.*).

The species of this genus known to me may be recognized as follows:—

- a. Hand very wide, its width exceeding the length of the movable digit; digits short, the immovable triangular, its basal width nearly equal to its length *latimanus*, sp. n., ♂.
(Corazon, 12,000 feet.)
- b. Hand narrower, its width less than length of movable digit; digits longer, basal width of the immovable only about half its length.
- a¹. More coarsely granular, the anteocular portion of carapace and the portion of the postocular area on each side of the median groove coarsely granular; last sternite mesially granular; first caudal segment with a pair of median granular keels; vesicle considerably more globular. *monticola*, sp. n.
(Machachi, 9000–10,000 ft.)
- b¹. Less granular, anteocular portion of carapace and its posterior median area nearly smooth; last sternite almost smooth in the middle; vesicle narrower, more elliptical *nitescens*, sp. n.
(Cachavi, 500 ft.)

Judging by the figures published by Becker of the two previously described species of this genus, namely *T. atramentarius*, Sim. (Ann. Soc. Ent. France, 1878, p. 400), from Quito, and of *T. ecuadorensis*, Becker (Ann. Soc. Ent. Belg. xxiv. p. 142, 1880), from Pensagui, Imbabura, 8000 feet, these two species fall under the heading *b* of the above table. Again, according to Becker's description, the tergal plates of the abdomen in *atramentarius* and *ecuadorensis* are "finement pointillés," and not "granuleux." If there is no error of observation involved in this statement, the two species are quite distinct from the forms described by me. Moreover, *ecuadorensis* appears further to differ from *atramentarius* in having the legs red instead of black, and the lower surface of the vesicle granular instead of punctured.